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Lame-Duck Vengeance?

Departing NSF Head Orders Firing, Reorganization

The man who rebuilt science education from the Reagan ruins at the National Science Foundation got the ax last week from NSF Director Erich Bloch, three months before Bloch's scheduled departure from the Foundation.

Bloch wrapped the swan-song deed in words of noble purpose about a reorganization and "new leadership" for even better education programs at NSF. But the bureaucratic execution had the appearance of a mean-spirited settling of scores with a zealous education advocate whose popularity and successes on Capitol Hill had often irritated the irascible NSF chief. Nevertheless, Bloch took the action, despite a last-minute request for delay from three Congressmen influential in NSF affairs: Tim Valentine (D-NC), Chairman of the NSF's House authorizing subcommittee, and two subcommittee members, Doug Walgren (D-Pa.) and George Brown (D-Calif.). NSF's education activities, they said in a letter to Bloch, "represent an area of extreme political sensitivity," and prior consultation is warranted.

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Cop Shop at NSF Plans Growth—P. 4

The victim of the reorganization was Bassam Z. Shakhashiri, who, after six years as Assistant Director of Science and Engineering Education, was abruptly told by Bloch on May 24 that he was out of that job as of June 1. Shakhashiri said the NSF Director told him he had held the education job "too long," and could have a post on Bloch's personal staff or leave NSF. As of June 12, Shakhashiri, still cleaning out his office, said he intended to remain with NSF, at least temporarily.

For a short period, Capitol Hill buzzed with resentment over Bloch's heavy-handed dismissal of a Congressional favorite. And Bloch was battered at a hearing of a House Science, Space and Technology Subcommittee, at which he alternated between anger and evasiveness in defending Shakhashiri's ouster. But Congressmen generally concede that personnel affairs within Executive Agencies are beyond their reach, and a major storm did not develop. The worst of it for Bloch was the impression he gave of remarkably petty behavior as he's about to wind up what many regard as the most successful term of any Director in NSF's 40-year history.

Over the past six years, in educational and in political circles, Shakhashiri had become the C. Everett Koop of science education. The difference was that Koop was politically tolerable to his Administration because he diverted attention from Reagan's neglect of AIDS and the tobacco issue; furthermore, as Surgeon General, Koop controlled no money. Shakhashiri, on the other hand, hitched his considerable public-relations skills to the ongoing national concern over the decay of science education and drew a lot of money out of a sympathetic Democratic Congress—more than his NSF boss deemed appropriate. Within NSF, many felt that Shakhashiri's education shop was prospering at the expense of scientific research. He denied that, arguing that education was merely attaining a "catchup" from long neglect, and that despite its progress, it remained severely

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In Brief

Optimistic reports spouted from the Department of Energy delegation that recently visited Japan to plead for support for the Superconducting Super Collider. But the Japanese, who have had plenty of time to think about the SSC, merely responded they'd think about it. The South Koreans presented an appearance of keen interest—but so far no money. The word from Europe on the SSC: not a chance.

But foreigners may not realize what they'll miss by not chipping in. DOE's newly issued SSC "Framework for International Collaboration" states: "Countries will be recognized for their participation in appropriate ways, including in scientific and other publications, in acknowledgements at the Laboratory, and in special ceremonies and presentations." Could be the makings of the costliest tie clasps in history.

The first Congressional verdict on the NSF budget for next year, from the House Appropriations Subcommittee: $2.337 billion, up $253 million over last year, but $46 million short of the White House request. NSF's education budget once again was favored, with the Subcommittee approving $285 million, $34 million above the request. The cut in the NSF total, combined with the boost in education, means millions less for NSF's research directorates. But there's still a long way to go before the figures are finally settled.

NSF wants to add a second person plus clerical help to its office in the US Embassy in Paris to expand monitoring of and ties with European science. But the landlord, the US State Department, says it can't spare the room.

The National Academy of Sciences has established a Committee on Scientific Responsibility and the Conduct of Research, chaired by Edward E. David Jr., former White House Science Adviser and industrial executive.

. . . Democrats Pushed Growth for Education at NSF

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underfunded.

Usually decorated with a big button proclaiming "Science Is Fun!" Shakhashiri became an admired character on the Washington scene. Many politicians and Congressional staff members, accompanied by children and wives, packed the Christmas-season chemistry shows that Shakhashiri annually staged and starred in, either in the auditorium of the National Academy of Sciences or the National Air and Space Museum. To squeals of childish delight, the shows produced a lot of smoke, bangs, and flashes, and opportunities for Shakhashiri to evangelize the parents on the neglected needs of science education.

Shakhashiri joined NSF in 1984 a year after he founded the Institute of Chemistry Education at the University of Wisconsin, from which he is still on leave as Professor of Chemistry. When he came to NSF, a few months before Bloch arrived from retirement as a Vice President at IBM, the Directorate for Science and Engineering was reviving from a near wipeout in the early Reagan-Stockman rampage against domestic programs. Graduate fellowship programs had survived, but not so elementary and secondary programs, for teacher-training, curriculum development, and various other attempts to resuscitate science education.

A Congressionally promoted budget turnabout on science education had just begun when Shakhashiri took office at NSF. He inherited a budget of $54 million, of which $20 million was for graduate fellowships and $31 million for pre-college programs. Then he promptly got a rough introduction to the politics of education at NSF. Though Congress, responding to a wave of doomsday reports, was especially anxious to boost pre-college science education, the NSF leadership contended that the pre-college programs needed more refinement and review, and insisted that the $31 million be carried over to the next fiscal year.

For fiscal 1985, Congress appropriated $82 million for education, with the expectation that the leftover $31 million would also be used for that purpose. But the $31 million still went unspent, and for fiscal 1986, the budget proposal for NSF called for $82 million, which included the elusive $31 million that had gone unspent over the previous two years. While this budgetary sleight of hand was proceeding, the Reagan Administration yielded to none in rhetorical concern over the wasted condition of science education, but remained stingy with the money.

Congressional Democrats finally caught on to the hypocrisy, and they started to pile on money clearly earmarked for Shakhashiri's Directorate. For fiscal 1987, the White House requested $89 million; Congress appropriated $99 million, and it's continued that way ever since in the budgetary affairs of education at NSF: for 1988, $115 million requested, $139 million appropriated; for 1989, $156 million requested, $171 million appropriated; for 1990, $190 million requested, $210 million appropriated. The 1991 request, $251 million, was raised June 12 by NSF's House Appropriations Subcommittee to $285 million. Some believe that even more may be added, as a testimonial to Shakhashiri and a slap at Bloch.

The Congressional bounty for science education came during the dark periods of deficit cutting and the frustrating of Bloch's heartfelt goal of a doubling of NSF's overall budget between 1988 and 1992. That the NSF Director was irritated by his chief of education was no secret in the halls of NSF, where Shakhashiri was the only one of six directorate heads who was not a Bloch appointee.

Shakhashiri's firing became widely known June 1 with the publication of a *Washington Post* article that quoted him as saying, "I am puzzled why in essence I am being fired. I came here when science education was decimated. I have rebuilt it." NSF then called a press briefing for the next day for the purpose of explaining the reorganization of education activities into a Directorate for Education and Human Resources with some $40 million worth of women's and minorities' programs drawn from the NSF Directorate for Scientific, Technological, and International Affairs. Attending the briefing was Shakhashiri's successor, Luther S. Williams, former President of the historically black University of Atlanta, who has been serving for the past year as Science Adviser to Bloch and as Executive Secretary of a newly formed inter-agency committee on education within the orbit of the White House Science Office.

Bloch Not Present at Briefing

Absent from the briefing was Bloch, despite an impression many reporters had that he would be present to discuss his handiwork. The explanation offered was that he was meeting with the Gorbachev delegation in Washington that day. Presiding in his place was Raymond E. Bye Jr., NSF's Director of Legislative and Public Affairs, who dutifully described the reorganization. Asked why lame-duck Bloch—his term is up August 30—had not left the reorgani-

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. . . Education Move Called "Last Dismal Chapter"

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zation to his as-yet-unnamed successor, Bye said it was urgent to get on with educational reform and that the filling of Presidentially appointed jobs often encounters long delays.

Bloch got that same question when he testified June 6 at a previously scheduled hearing on education before the Science, Research, and Technology Subcommittee of the House Science, Space, and Technology Committee. The Subcommittee, which has jurisdiction over NSF, has long been a booster of its education programs and a scornful critic of their treatment by the White House and NSF management. Shakhashiri attended as a member of the audience. He was not called to testify.

With Bloch and Luther Williams at the witness table, Rep. Doug Walgren (D-Pa.) noted that Bloch would soon leave the Foundation. "In many ways," the Congressman said, "your tenure has seen very good things, and much of it the result of leadership you have given the agency. At the same time," Walgren continued, "I think we will look back on this as a last dismal chapter in the events surrounding science education efforts by the National Science Foundation."

Expressing great admiration for Shakhashiri's performance, Walgren asked why he was being ousted "in the last several weeks of your Directorship?" and "Why was the new Director not given the opportunity to select his or her own person for the most important function in the National Science Foundation?"

Bloch, a seasoned performer at Congressional hearings, responded that "there's continuity in the National Science Foundation," noting that NSF's policymaking body, the National Science Board, "is a continuing body" and that the Deputy Director was appointed six months ago for a six-year term. "The Director is the only one among the three that I mentioned that is leaving," Bloch said.

Stating that the National Science Board had been consulted on the shift, Bloch said, "There's never a good time to make a change, never a good time to make a change. Changes have to be made from time to time. It was my conclusion that this was the time to do it, rather than wait six months, twelve months before the next Director is in place. . . . I don't know when the next Director is coming," Bloch said, adding, "Time is of the essence."

"In the last analysis," the NSF Director told the Subcommittee, "it has to be a management decision. That's the only way you can administer a complex organization like the National Science Foundation."

Bloch then disputed the contention that the Administration has neglected science education, noting "a large number of programs in place in the undergraduate area. And we have strengthened significantly the human-resources effort," Bloch declared, "especially for under-represented groups. I can't agree with you," Bloch told the Congressman.

Walgren acknowledged that "this area has been substantially resurrected," but he noted, "it has been very little thanks to the Administration that these kinds of dollars have been put into place." And he recalled that in the early days of NSF, science education received a far larger share of the total budget than it does today.

"My greatest dismay," Walgren continued, "is that by making the personnel change in the way it was made, and the time it was made, there is a very clear message sent that any individual who candidly states the facts in science education, in a way that compares our present effort with what we have traditionally conducted, runs the risk of losing their job. In making this personnel change as you have made it, you have chilled the ability of other administrators to be candid about the circumstance we find ourselves in.

"To my knowledge," Walgren went on, "Dr. Shakhashiri is the only one who really had the courage to put a number on the level of effort that we need"—a reference to the $600 million that Shakhashiri, under friendly Congressional questioning, once declared a proper budget for his programs. Repeatedly terming NSF's education efforts insufficient, Walgren said, "What has happened here is that the individual who pointed out that the words were cloaking something that was woefully inadequate is essentially removed from the circumstances."

Bloch replied with a bit of heat, "I'm the one who has tried to focus the Administration and the Congress on the doubling of the National Science Foundation's budget, including the education and human resources area." Bloch noted that area "has grown faster than the rest of the Foundation."

"I've pointed out over and over again," Bloch said, "that what the Foundation is asked to do, and what its capabilities are, are not synchronized. There's a gap between the two. So, I take some credit for that."

Bloch continued: "Every Assistant Director will point to a number that he wants for his particular area." The reorganization of education, he insisted, had nothing to do with budgets, but was aimed at enhancing NSF's role in science education.

Left unasked and unanswered is the simple question of why, if Bloch felt Shakhashiri had to go, his removal was handled with crudity rather than grace? A few gracious words in private, a testimonial ceremony, perhaps an award for excellent service. There are ways of doing these things nicely rather than clumsily, as Bloch surely must have observed in his long service with IBM.

In the absence of an answer, the most plausible explanation is that Erich Bloch engaged in the venerable practice of settling scores while you can.

Meanwhile, Shakhashiri is reported to have received a flock of appealing job offers. For the time being, he's remaining at NSF, but probably not for long.—DSG

Inspector General at NSF Expanding Operations

Robust growth in the fledgling Office of the Inspector General (IG) at the National Science Foundation is revealed in the IG's latest report, along with ambitious plans to extend the search for villainies in NSF's inhouse and external operations.

No misdeed of any great consequence had been disclosed at NSF in its 38 years prior to 1988, when Congress mandated the appointment of IGs at various small agencies. And none has come to light in the relatively short period since NSF's IG, Linda G. Sundro, an attorney, was appointed from an IG post at the Commerce Department and set up shop at NSF in May 1989. But with the national mistrust index at a high level, suspicious scrutiny is the order of the day—and in performing it, the IGs are following the law.

The IG's office is housed at NSF's downtown Washington headquarters, but administratively, it is attached to the National Science Board, the 24-member group of outsiders that functions as NSF's board of directors. The IG's surveillance function does not project a heavy presence in NSF's day-to-day operations. On several occasions, however, SGR has heard Foundation staff members make remarks to the effect of "how would this look to the IG?" What's clear is that in the evolution of the scientific enterprise, the arrival and flourishing of an inhouse cop shop at NSF symbolizes tighter reins and diminished trust.

"Our first criminal investigator/special agent was hired in December 1989," Sundro states in the second of the semi-annual reports IGs are required to submit to Congress. This one covers October 1, 1989 - March 31, 1990, and is longer and far more detailed than the premier report (SGR, November 15, 1989), which came due while the new office was assembling a start-up staff.

The criminal investigator, Paul Coleman, formerly worked for the Air Force and is described in the report as having "a broad investigative background and a Masters of Arts degree in Criminal Justice with a concentration in economic crime." His hiring, the report states, is part of a mobilization "to meet the challenges of the next decade."

In preparation for that task, the IG also reports, "We have established requirements for an automated investigative retrieval system and a subpoena tracking system... The Investigations Unit has begun efforts to establish a secure storage area for investigative files. . . In addition, we designed and issued credentials and badges during this reporting period."

In recent months, Sundro's office has also hired an attorney, an editor-writer, an engineer, and an auditor, bringing the ranks to 22 professional and three clerical employes, supported by a current annual budget of $2.56 million. Next year's budget, due to go into effect October 1, calls for a 17-percent increase, to $3 million, Congress willing. The proposed budget provides for two additional staff members, but the report notes that "Our ability to provide complete audit coverage and satisfy all of our responsibilities under the IG Act Amendments will depend on our ability to develop additional resources in both budget and personnel in the coming years." Stacked against NSF's $2-billion plus budget, the sums for the IG are relatively small. Moreover, the Office of the IG absorbed NSF's routine audit activities, and therefore a portion of the costs were already written into the NSF budget. But the report indicates that the scope and ambitions of the IG set-up extend beyond commonplace audits, which now as in earlier days, routinely turn up financial discrepancies (see box, Page 5).

In addition to the semi-annual report required by Congress, the NSF Office of Inspector General has published a short summary of recent studies of the incidence of misconduct in science and engineering. Both publications are available without charge.

Survey Data on the Extent of Misconduct in Science and Engineering (OIG 90-3214, 9 pp.)

Semiannual Report to the Congress, No. 2 (37 pp.)

Order from: Office of the Inspector General, NSF, 1800 G St. NW, Suite 1241, attn. Renee Pettis, Washington, DC 20550; tel. 202/357-9457.

Thus, under the heading "Misconduct in Science and Engineering," the report states that the IG's Oversight Office "has responsibilities for preventing, detecting, and eliminating misconduct and for recommending policies that address the problem of misconduct as it affects the integrity of scientific scholarship. As we gain experience," the report continues, "we may wish to formalize [Office of Inspector General's] developing procedures and present them for criticism to a greater community of interest, including the Congress, other federal agencies, and awardees."

In connection with this goal, the report states, the IG "is interested in developing measures of the extent to which misconduct occurs. Such information would meet a frequently expressed need and would show whether the cases that occur are rare individual deviations or whether there is a systemic problem. In the latter case, broad education of researchers may be required in addition to any sanctions imposed on individuals."

As part of this undertaking, the report states, the IG has begun a "pilot project" to "determine whether editors can and will provide statistically useful information" on misconduct. But the IG says the early returns are not promising. Based on interviews with three editors and nine "experts in the field of misconduct in research," the report states, "Preliminary results indicate that journal editors see very few cases of scientific misconduct and moreover do not keep good records of them. They are fairly likely to see relatively minor offenses like multiple publication of essentially the same article. Much less often, they may see plagiarism, but

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Closer Review of Grantee Financial Practices

The latest report of the NSF Inspector General lists 41 organizations whose handling of NSF funds has aroused the skeptical attention of the IG. The total amount of money involved is relatively small, but the details of the cases strongly suggest that NSF grantee organizations now face a greater likelihood of trouble for slovenly bookkeeping and questionable financial practices.

A little over $3 million of the queried funds are under the heading of "Questioned Cost," a catchall term for anything from "alleged violations of law" to allegedly "unnecessary or unreasonable" expenditures. Another $1.5 million is under "Unsupported Cost," which means "a lack of adequate documentation at the time of audit."

But there's overlap between the two lists, and for some of the organizations cited, the amounts are absurdly small, e.g., a $76 item, not identified, at the University of Maine System. Furthermore, an audit challenge by the IG does not automatically equal a discrepancy, since further negotiations often absolve the grantee organization of any wrongdoing.

Without explicit identification, one case cited involved a "private non-profit research center that develops computer software for educational purposes." The report says the IG reviewed seven grants awarded over eight years for a total of over $8 million. The money was awarded under terms that allowed the grantee organization "to generate income from activities undertaken in performance of the award."

Alas, the IG "found that the research center did not report income as required and withdrew federal funds before they were needed to meet program requirements. In addition," the IG reported, "federal funds were not deposited in interest-bearing accounts as required by an OMB [Office of Management and Budget] circular." The interest loss was said to total $17,000.

The software producers were found guilty of another banking sin: "Premature withdrawal of federal funds helped to cause bank balances in a checking account to exceed the level covered by the Federal Deposit Insurance Corporation." As a result, the IG said, $133,000, was exposed to bank failure, though no suggestion is made that the calamity actually occurred.

The IG's account of this episode does not disclose whether restitution was sought. But another section of the report notes that at present, NSF can recover monetary damages only through a civil prosecution by the Justice Department under the False Claims Act. Given that relatively minor sums are usually at stake in these matters, the IG observes, NSF would benefit from inclusion in the Program Fraud Civil Remedies Act of 1986, which was designed to speed the handling of small cases. Under the Act, federal agencies can recover twice the amount of damages plus civil penalties.

Another case cited in the report concerns three grants, totaling $128,000, to an unidentified "private nonprofit institute that gives fellowships to support research and study in India." The IG said that the "institute did not adequately account for funds in the NSF-supported program," adding that "internal controls were poor" and that the institute "had not completed quarterly reports in 5 out of 8 instances." This one ended on a kindly note from the IG: "Although we did not question any cost," the report states, "we recommended significant changes in accounting, reporting, and reviewing procedures."

Inspector General

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they seldom learn of data fabrication." The report says the IG plans to continue the pilot study, "and perhaps extend it to different fields of science and engineering."

The IG report adopts the negative line of the mainstream scientific establishment on the sensitive issue of "auditing the laboratory data that underlie research papers offered for publication. It has been proposed," the report states, "that biomedical journal editors join in setting up such an arrangement. We have taken no position on this proposal; however, we have adopted the policy that we will not conduct audits of research data and will investigate research data only when necessary in resolving specific allegations of misconduct."

The IG report also discloses another line of activity concerning scientific misconduct. In regulations issued pre-IG, July 1987, NSF stated a multi-item definition of misconduct that included "fabrication, falsification, plagiarism, or other serious deviations from accepted practices in proposing, carrying out or reporting results from research." The report states that the IG's Office "is concentrating" on that definition as part of its study of scientific misconduct.

The six-month period covered in the report produced a paltry yield in the misconduct category. Of the eight "allegations" that were received, the IG reports, three were deemed "too vague for effective followup with our limited resources." This left the IG Investigations Unit six "active cases," including a holdover from the previous reporting period. "Two cases," the report states, "(one involving alleged forgery on NSF stationery and the other involving alleged embezzlement of grant funds) have been referred to the Department of Justice for prosecution. An additional case is scheduled for trial in California State court for alleged embezzlement of grant funds."

Citing federal privacy regulations and a policy of not discussing cases in midstream, the IG's office declined to give SGR the essential details of these cases. An IG official did say that the cases did not involve scientific personnel and that the sum in the California case was $16,000.—DSG

With Only a Few Gripes, Science Likes Mr. Bush

With sufficient time having passed for the science establishment to have settled into familiarity with the Bush Administration, SGR's verdict is that science has got itself a bitter-sweet relationship, mostly sweet.

The President, who puts exceptional effort into being liked, has been especially attentive to two of the basic cravings of science in its dealings with government: money and recognition. The budgets that Bush has proposed for research are generous by recent standards, though inevitably insufficient to satisfy the boundless ambitions of researchers. Still, he has supported the doubling of the NSF budget, begun the restoration of non-nuclear energy research, and has backed every mega-project on the agenda.

Bush has also been attentive on the ritualistic front, a matter on which the mandarins of science are as sensitive as banana republic generals. He addressed the recent annual meeting of the high temple of science, the National Academy of Sciences. What he mainly delivered was a rehash of shopworn material from speeches and Congressional testimony of his Science Adviser. But the Academy folk were nonetheless touched by his presence, mindful that the last Presidential visitor was Jimmy Carter, and before that, John F. Kennedy. Reagan didn't give the academicians the time of day, and his two Science Advisers seemed to regard the institution as a dupe of the Soviet Academy of Sciences.

In accord with many pleas from the leaders of research, Bush has resurrected the White House Office of Science and Technology Policy from the catalepsy into which it lapsed in the final Reagan years. His Science Adviser, D. Allan Bromley, regularly wows the audiences in his many appearances around Washington. In Congress, Bromley's stonewalling on global change arouses resentment, but even there, the silver-haired, forthright physics professor is generally well regarded.

High praise for the science policies of the Bush Administration has been stated by Frank Press, President of the National Academy of Sciences, who served as White House Science Adviser in the Carter Administration. In Press's view, Bush has delivered on fiscal support for science, and the Academy President deems Bromley's advisory set-up as the most powerful since the Kennedy Administration. In the mysterious workings of Academy membership, election was voted in April for Bromley, who, prior to his present employment went unnoted by the Academy.

But even with all those positive notes, the halls of science ring with grievances, for besides money and recognition, there's a third item of consummate importance to science in its dealings with government: autonomy in research. Scientists don't want dictates on what to research and what not to research. And here the abortion issue has intruded on a major segment of science, biomedical researchers.

The National Institutes of Health has now been leaderless for nearly a year, thanks to the pro-life "litmus test" that repelled the first batch of candidates and chilled the interest of others. A pledge to desist has been given by hardliners responsible for the debacle, Assistant Secretary of Health James O. Mason and his henchmen in the Department of Health and Human Services. But few trust them, and the distrust has been boosted by Mason's reaffirmation of the ban on federal funds for fetal-tissue research.

Bush has steered clear of public involvement with the fetal-tissue controversy and the ground rules for NIH directorship. And the leaders of science have prudently avoided open criticism of him on these matters, though in private, some are intensely scornful. However, many give Bush the benefit of the doubt, saying he's got to appease the right.

Otherwise, Bush and science get on very well. Usually depending on where they are situated professionally, the leaders of science feel one or another dissatisfaction, ranging from the intrusion of the abortion issue to the Administration's heavy splurging on mega-projects while "little science" is gasping. Others are frustrated by the slow pace of change to civilian research and the Administration's incoherence on the federal role in assisting high-tech industry.

But Bush's carefully adopted pose of nice-guy, trying-hard-in-difficult-circumstances has won science, as it has the general public. The leaders feel they have a friend in the White House.

The needs of science are simple, and Bush, skilled at constituency building, knows what they are.—DSG

Job Changes & Appointments

Eric Juengst has been named head of the Bioethics Program at the NIH National Center for Human Genome Research. Juengst, a PhD in philosophy, comes to the program from Pennsylvania State University College of Medicine, where he was Assistant Professor in the Department of Humanities. Budgeted next year for $103 million, and slated eventually for $200 million a year, the Center plans an annual set aside of 3 percent of its funds for bioethics studies, according to Director James D. Watson.

Albert Lumbroso, Washington representative of the French *Centre National de la Recherche Scientifique* (CNRS) since 1983, will return in July to a post in Paris. He will be succeeded by ***Remy Lestienne***, currently with CNRS in Paris.

Lewis P. Lipsitt, Professor of Psychology and Medical Science and Director of the Child Study Center, Brown University, has been named Executive Director for Science of the American Psychological Association.

Michel A. Ibrahim, Dean of the School of Public Health, University of North Carolina, Chapel Hill, has been appointed Editor of the *American Journal of Public Health*, official journal of the American Public Health Association. He succeeds ***Alfred Yankauer***, Professor of Community and Family Medicine, University of Massachusetts, Worcester, who served as Editor for 15 years.

More In Print: Resources, Energy, Nader, Copyright

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totropin and appropriations for state-supported research.

Order from: IBA, 1625 K St. NW, Suite 1100, Washington, DC 20006; tel. 202/857-0244.

World Resources: 1990-91 (Oxford University Press, 383 pp., $17.95), an extensive collection of environmentally related data, plus analyses, on 146 countries, compiled by the World Resources Institute, a Washington-based policy-research organization, in collaboration with the UN Environment Program and the UN Development Program. Topics covered include food production, population trends, wildlife and habitat losses, freshwater supplies, etc. The volume contains special sections on climate change and Latin America.

Available at bookstores or from World Resources Institute Publications, PO Box 4852, Hampden Station, Baltimore, MD 21211; tel. 301/338-6963; add $3 for mail orders.

E^3: Organizing for Environment, Energy and the Economy in the Executive Branch of the US Government (19 pp., no charge), from the Carnegie Commission on Science, Technology, and Government, a *kibitzers* council on national science-policy affairs, staked by the Carnegie Corporation and peopled with many sci-tech luminaries of long-ago Democratic regimes, plus a sprinkling of civilized Republicans. The present report was produced by the Commission's Task Force on Environment and Energy, Chairman, H. Guyford Stever, Science Adviser in the Ford White House and since then helmsman for many big policy studies under the banner of the National Academy of Sciences. The report says the Executive Branch is poorly organized for coping with the 3 Es of the title and suggests several options, including creation of an Executive Office Council on Environment, Energy, and the Economy to replace the existing Council on Environmental Quality. The White House does not seem to have been moved by the report.

Order from: Carnegie Commission on Science, Technology, and Government, 10 Waverly Place, New York, NY 10003; tel. 212/998-2150.

Public Citizen Publications: 1990 (16 pp., no charge), lists the many books, reports, Congressional testimonies, etc., produced by the various Washington-based organizations founded by Ralph Nader. Topics range widely, and include energy and environment, pharmaceutical drug regulation, health care, Congressional junketing, rights of airline passengers, and how to use the Freedom of Information Act.

Order from: Public Citizen, 2000 P St. NW, Suite 605, attn. Tony Wynne, Washington, DC 20036; tel. 202/293-9142.

Technology Transfer: Copyright Law Constrains Commercialization of Some Federal Software (GAO/RCED-90-145; 51 pp., no charge), by the General Accounting Office, investigative service for the Congress, says federal agencies develop at least 10 percent of the software produced in the US, but that lack of authority to copyright and license software impedes transfer to the private sector, "because businesses are unwilling to invest in this software without copyright protection and some guarantee of exclusivity." The GAO noted that some federal laboratory managers and researchers opposed amending the copyright law because they feared commercialization opportunities would cause distractions and interfere with federal-academic relationships. The report was requested by Rep. Robert W. Kastenmeier (D-Wisc.), Chairman of the Subcommittee on Courts, Intellectual Property and the Administration of Justice, Committee on the Judiciary. Data for the report were collected from the Departments of Agriculture, Commerce, Energy, Defense, and EPA, NASA, and NIH.

Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20877; tel. 202/275-6241.

Changing Global Patterns of Industrial Research and Development (background papers, 240 pp., $20; proceedings, 385 pp., $35), from an international conference, June 1989, in Stockholm, co-sponsored by the Center for Science and Technology Policy of the Rensselaer Polytechnic Institute School of Management and the Swedish Employment Security Council. Participants included research and planning officials from multi-national high-tech firms and various government-supported R&D programs designed to boost industry.

Order from: Center for Science and Technology Policy, School of Management, RPI, Troy, NY 12180-3590; tel. 518/276-6836.

In Print: Health Funding, Energy, HDTV, Biotech

The publications listed are obtainable as indicated—not from SGR.

Critical Health Funding Issues (Serial No. 5-8; 234 pp.) text of a hearing in March, plus supplementary material, by the Task Force on Human Resources of the House Committee on the Budget, with 14 witnesses, from medical, professional, and patients organizations, discussing biomedical research programs at NIH, FDA, VA, and other federal agencies. The tone throughout reflected disappointment with funding levels. The hearing, chaired by Rep. Barbara Boxer (D-Calif.), was in a series with ***AIDS Funding Issues—Impact Aid, Early Intervention, Research, and Prevention*** (Serial 5-6, 156 pp.) and ***Pediatric AIDS*** (Serial 5-7, 115 pp.), all available without charge.

Order from: Committee on the Budget, House of Representatives, HOB Annex I, Room 214, attn. Publications, Washington, DC 20515; tel. 202/226-7217.

Energy Use and the US Economy (GPO Stock No. 052-003-01195-6; 65 pp., $3.50), by the Congressional Office of Technology Assessment (OTA), reports that energy use in the US remained essentially flat from 1972-85, despite major increases in the number of homes, vehicles, and businesses, and a real 39-percent increase in gross domestic product (GDP). Two-thirds of the energy savings, OTA says, came from conservation; the rest, from shifts away from energy-intensive industries toward service industries. But the report notes a sharp rise in energy use per dollar of GNP since 1986, attributed to revivals of steel, aluminum, and other energy-intensive industries.

OTA concludes that "Economic growth is not necessarily contingent on using more energy." But it also points out that the US energy score does not reflect the energy consumption embodied in booming imports of autos, steel, etc. The report was requested by Rep. Phil R. Sharp (D-Indiana), Chairman of the Energy and Power Subcommittee, House Committee on Energy and Commerce.

Also from OTA: ***The Big Picture: HDTV & High-Resolution Systems*** (GPO Stock No. 052-003-01193-0; 108 pp., $5), a primer on the history, economics, technology, etc., of high-definition television, shorthand term for the sprawling and promising high-tech field that has come to symbolize the impasse between the Bush Administration's hands-off free-marketeers and Congressional Democrats (plus a few Republicans), who are urging federal underwriting and orchestration of research on HDTV and other hot technologies. The OTA report, requested by Rep. George Brown (D-Calif.) and released by the House High-Technology Caucus, points out that HDTV is widely and mistakenly regarded as just a better TV picture, but that it is actually the core of a coming generation of consumer, industrial, and military technologies. OTA also notes that Japan is doggedly moving ahead in the field, Europe is striving hard to catch up, while HDTV work in the US is nearly extinct.

The OTA report was greeted with a flourish of hyperbole by Rep. Don Ritter (R-Pa.), a rare scientist on Capitol Hill (Sc.D., MIT, 1966), who said that "the message this report is delivering is equivalent to the letter that Einstein wrote to President Roosevelt during World War II on the need to develop atomic weapons."

Order OTA reports from: USGPO, Superintendent of Documents, Washington, DC 20402-9325; tel. 202/783-3238.

Survey of State Government Legislation on Biotechnology (31 pp., no charge), latest issue of a roundup, compiled several times annually, by the Industrial Biotechnology Association, shows that biotechnology continues to inspire a considerable volume of state legislation, with nine states listed as having enacted statutes this year, atop 20 in which bills were passed up to the end of 1989. By categories, the purposes range widely, from establishment of advisory and study commissions to restrictions on use of bovine soma-

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